Amended Claims

1. (Cancelled)

2. (amended) ~~The method of claim 1, wherein detecting active regions of the echo channel impulse response comprises~~: A method for canceling an echo component of a received signal, the method comprising:

detecting active regions of an echo channel impulse response by:

computing an estimate of the echo channel impulse response using a number of short finite impulse response filters represented by a second set of filter coefficients;

computing an average error for each short finite impulse response filter; and identifying up to L short finite impulse response filters having a lowest average errors, where L is a predetermined maximum number of reflections tracked by the echo canceller~~.~~; and

detecting active regions of an echo channel impulse response; and filtering only portions of the received signal corresponding to the active regions of the echo channel impulse response using a first set of filter coefficients to cancel the echo component of the received signal.

3. (original) The method of claim 2, wherein filtering the signal corresponding to the active regions of the echo channel impulse response:

transferring to the first set of filter coefficients those filter taps from the second set of filter coefficients corresponding to at least one short finite impulse response filter having the lowest average error.

4. (original) The method of claim 3, wherein transferring to the first set of filter coefficients those filter taps from the second set of filter coefficients corresponding to at least one short finite impulse response filter having the lowest average error comprises:

initially transferring two short finite impulse response filters having the lowest average errors from the second set of filter coefficients to the first set of filter coefficients; and

subsequently transferring short finite impulse response filters having the lowest average errors one at a time from the second set of filter coefficients to the first set of filter coefficients.

5. (original) The method of claim 3, further comprising:

distributing a number of additional filter taps equally among the two reflections having the highest tap powers modeled by the first set of filter coefficients.

6. (Amended) ~~The method of claim 1, further comprising:~~ A method for canceling an echo component of a received signal, the method comprising:

detecting active regions of an echo channel impulse response; and

filtering only portions of the received signal corresponding to the active regions of the echo channel impulse response using a first set of filter coefficients to cancel the echo component of the received signal;

computing a first average error using all reflections modeled by the first set of filter coefficients;

computing a second average error using all reflections modeled by the first set of filter coefficients except the lowest power reflection; and

removing the lowest power reflection from the first set of filter coefficients if the second average error is smaller than the first average error.

7. (original) The method of claim 6, further comprising:

distributing the filter taps associated with the removed lowest power reflection among the remaining reflections modeled by the first set of filter coefficients.

8. (Amended) ~~The method of claim 1, further comprising:~~ A method for canceling an echo component of a received signal, the method comprising:

detecting active regions of an echo channel impulse response; and

filtering only portions of the received signal corresponding to the active regions of the echo channel impulse response using a first set of filter coefficients to cancel the echo component of the received signal;

tracking reflections in the filtered echo channel impulse response using the first set of filter coefficients; and

revising the first set of filter coefficients based upon the filter tap powers of the corresponding reflection.

9. (Cancelled)

10. (Amended) ~~The echo canceller of claim 9,~~ An echo canceller for canceling an echo component of a received signal comprising active tap detection logic operably coupled to filter only a portion of the received signal corresponding to the active regions of an echo channel impulse response using a first set of filter coefficients to cancel the echo component of the received signal, track the change in the location of each reflection of the received signal using a the first set of filter coefficients, and detect active regions of the echo channel impulse response using a second set of filter coefficients;

wherein the active tap detection logic is operably coupled to compute an estimate of the echo channel impulse response using a number of short finite impulse response filters represented by a second set of filter coefficients, compute an average error for each short finite impulse response filter, and identify up to L short finite impulse response filters having a lowest average errors, where L is a predetermined maximum number of reflections tracked by the echo canceller.

11. (original) The echo canceller of claim 10, wherein the active tap detection logic is operably coupled to transfer to the first set of filter coefficients those filter taps from the second set of filter coefficients corresponding to the L short finite impulse response filters having the lowest average errors.

12. (original) The echo canceller of claim 11, wherein transferring of filter coefficients is performed by initially transferring 2 short finite impulse response filters having the lowest average errors and then transferring short finite impulse responses having the lowest average error one at a time, up to L short finite impulse response.

13. (original) The echo canceller of claim 12, wherein the active tap detection logic is operably coupled to distribute a number of additional filter taps equally among the two reflections having the highest tap powers modeled by the first set of filter coefficients.

14. (Amended) ~~The echo canceller of claim 9,~~ An echo canceller for canceling an echo component of a received signal comprising active tap detection logic operably coupled to filter only a portion of the received signal corresponding to the active regions of an echo channel impulse response using a first set of filter coefficients to cancel the echo component of the received signal, track the change in the location of each reflection of the received signal using a the first set of filter coefficients, and detect active regions of the echo channel impulse response using a second set of filter coefficients;

wherein the active tap detection logic is operably coupled to compute a first average error using all reflections modeled by the first set of filter coefficients, compute a second average error using all reflections modeled by the first set of filter coefficients except the lowest power reflection, and remove the lowest power reflection from the first set of filter coefficients if the second average error is smaller than the first average error.

15. (original) The echo canceller of claim 14, wherein the active tap detection logic is operably coupled to distribute the filter taps associated with the removed lowest power reflection among the remaining reflections modeled by the first set of filter coefficients.

16. (original) The echo canceller of claim 10, wherein the active tap detection logic is operably coupled to track reflections in the filtered echo channel impulse response using the first set of filter coefficients by comparing filter tap powers in each reflection.

17. (Cancelled)

18. (previously presented) A method for canceling an echo component of a received signal, the method comprising:

detecting active regions of an echo channel impulse response; and filtering the signal corresponding to the active regions of the echo channel impulse response using a first set of filter coefficients;

computing an estimate of the echo channel impulse response using a number of short finite impulse response filters represented by a second set of filter coefficients;

computing an average error for each short finite impulse response filter; and identifying up to L short finite impulse response filters having a lowest average errors, where L is a predetermined maximum number of reflections tracked by the echo canceller.

19. (previously presented) The method of claim 18, wherein filtering the signal corresponding to the active regions of the echo channel impulse response:

transferring to the first set of filter coefficients those filter taps from the second set of filter coefficients corresponding to at least one short finite impulse response filter having the lowest average error.

20. (previously presented) The method of claim 19, wherein transferring to the first set of filter coefficients those filter taps from the second set of filter coefficients corresponding to at least one short finite impulse response filter having the lowest average error comprises:

initially transferring two short finite impulse response filters having the lowest average errors from the second set of filter coefficients to the first set of filter coefficients; and

subsequently transferring short finite impulse response filters having the lowest average errors one at a time from the second set of filter coefficients to the first set of filter coefficients.

21. (previously presented) The method of claim 19, further comprising:

distributing a number of additional filter taps equally among the two reflections having the highest tap powers modeled by the first set of filter coefficients.

22. (previously presented) A method for canceling an echo component of a received signal, the method comprising:

detecting active regions of an echo channel impulse response; and filtering the signal corresponding to the active regions of the echo channel impulse response using a first set of filter coefficients;

computing a first average error using all reflections modeled by the first set of filter coefficients;

computing a second average error using all reflections modeled by the first set of filter coefficients except the lowest power reflection; and

removing the lowest power reflection from the first set of filter coefficients if the second average error is smaller than the first average error.

23. (previously presented) The method of claim 22, further comprising:

distributing the filter taps associated with the removed lowest power reflection among the remaining reflections modeled by the first set of filter coefficients.

24. (previously presented) The method of claim 22, further comprising:

tracking reflections in the filtered echo channel impulse response using the first set of filter coefficients; and

revising the first set of filter coefficients based upon the filter tap powers of the corresponding reflection.

25. (previously presented) An echo canceller comprising active tap detection logic operably coupled to filter the signal corresponding to the active regions of an echo channel impulse response using a first set of filter coefficients, track the change in the location of each reflection using a first set of filter coefficients, and detect active regions of the echo channel impulse response using a second set of filter coefficients, wherein the active tap detection logic is operably coupled to compute an estimate of the echo channel impulse response using a number of short finite impulse response filters represented by a second set of filter coefficients, compute an average error for each short finite impulse response filter, and identify up to L short finite impulse response filters having a lowest average errors, where L is a predetermined maximum number of reflections tracked by the echo canceller.

26. (previously presented) The echo canceller of claim 25, wherein the active tap detection logic is operably coupled to transfer to the first set of filter coefficients those filter taps from the second set of filter coefficients corresponding to the L short finite impulse response filters having the lowest average errors.

27. (original) The echo canceller of claim 26, wherein transferring of filter coefficients is performed by initially transferring 2 short finite impulse response filters having the lowest average errors and then transferring short finite impulse responses having the lowest average error one at a time, up to L short finite impulse response.

28. (previously presented) The echo canceller of claim 27, wherein the active tap detection logic is operably coupled to distribute a number of additional filter taps equally among the two reflections having the highest tap powers modeled by the first set of filter coefficients.

29. (previously presented) An echo canceller comprising active tap detection logic operably coupled to filter the signal corresponding to the active regions of an echo channel impulse response using a first set of filter coefficients, track the change in the location of each reflection using a first set of filter coefficients, and detect active regions of the echo channel impulse response using a second set of filter coefficients, wherein the active tap detection logic is operably coupled to compute a first average error using all reflections modeled by the first set of filter coefficients, compute a second average error using all reflections modeled by the first set of filter coefficients except the lowest power reflection, and remove the lowest power reflection from the first set of filter coefficients if the second average error is smaller than the first average error.

30. (previously presented) The echo canceller of claim 29, wherein the active tap detection logic is operably coupled to distribute the filter taps associated with the removed lowest power reflection among the remaining reflections modeled by the first set of filter coefficients.

31. (previously presented) The echo canceller of claim 29, wherein the active tap detection logic is operably coupled to track reflections in the filtered echo channel impulse response using the first set of filter coefficients by comparing filter tap powers in each reflection.